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*Separate  
New funds on  
extension  
request.*

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TO:

SUBJECT: Report on Project 1-315-E

The following is, in summary form, a report on the present status of this project:

I. Original Proposal

A. Work Completed:

1. Facilities, including a dust-free work room and storage space for the instruments, have been constructed.
2. The instruments have been unpacked and stored.
3. A survey of literature on ultra-violet radiation and fluorescence has been made.
4. Jigs and tools for disassembly and reassembly of the instruments were constructed.
5. Test equipment and instruments have been constructed and an ultra-violet source for test use was purchased.
6. One optical instrument was completely disassembled and details of construction noted; a program of operations and tests has been outlined.
7. All of the instruments have been examined for defects or damage and each instrument tested to determine its response to ultra-violet excitation.
8. Several outdoor tests have been held at night to determine the correlation between tests made in the laboratory and actual field operation.
9. All instruments, except one used as a standard for comparison, have been completely disassembled and component parts thoroughly cleaned. This included the removal of the old phosphor from the target.

B. Work in Progress:

1. Tests are being performed on phosphors, vehicles, and solvents to determine the most suitable materials and the best method of application. A number of phosphors have been ordered. Vehicles are now at hand.

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2. Several designs for a suitable desiccator have been drawn and submitted to manufacturers for recommendations and bids. Bids are in negotiation.

3. A holding jig has been completed and other tools are under construction for focusing the targets in the instruments.

C. Work to be Done:

1. Targets will be coated with a new phosphor.
2. Instruments will be reassembled and the targets focused.
3. Instruments will be desiccated, new desiccators will be inserted, and the instruments will be sealed.
4. Each instrument will be given a final test.

III. The following covers the work included in the proposed extension dated 20 October 1953 and such other necessary tasks, all of which have received verbal approval of the sponsor's representatives:

A. Work Completed:

1. A literature and laboratory investigation on sources of ultra-violet radiation and ultra-violet filters has been made.
2. Numerous samples of filter materials for testing and examination have been obtained, and seven different types of filters have been purchased for field test use.
3. A 400-watt mercury-vapor lamp with reflector, filter, and ballast was purchased for field test purposes.
4. Design has been completed and bids have been obtained for the construction of lens caps.
5. Preliminary design has been made for the construction of a tripod holder.

B. Work in Progress:

1. Design of field test use housing for 400-watt ultra-violet source is in progress.



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2. Bids on a rust-resistant finish and an inner liner for the lens caps are being negotiated.

C. Work to Be Done:

1. Complete design of tripod holder will be made and bids for construction will be obtained.

2. Present case will be modified to receive lens caps and tripod holders.

3. Lens caps and tripod holders will be procured.

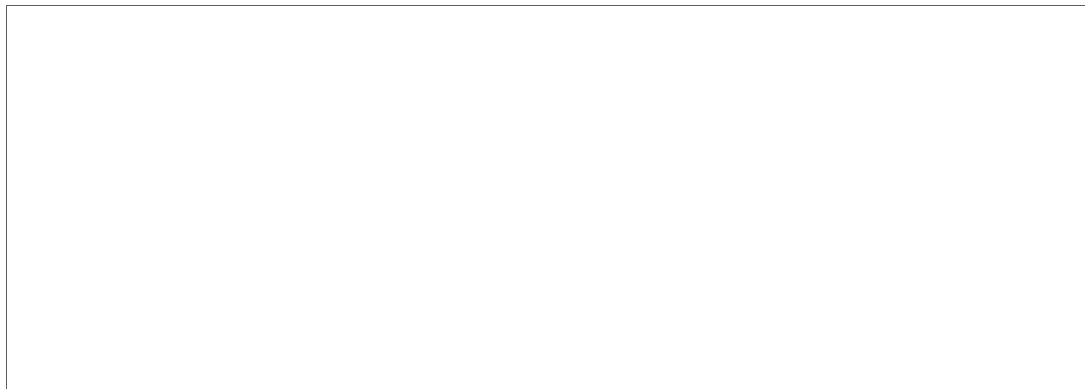
4. The optical instruments, lens caps, and tripod holders will be assembled into a single unit.

5. Other more appropriate sources of ultra-violet radiation will be purchased and tested.

6. An ultra-violet source with a suitable housing will be designed and constructed.

7. The ultra-violet source will be mounted on a mobile unit and tested with the optical instruments under actual operation conditions.

III. Following is the estimated cost of completing work under original proposal and performing additional requested work:



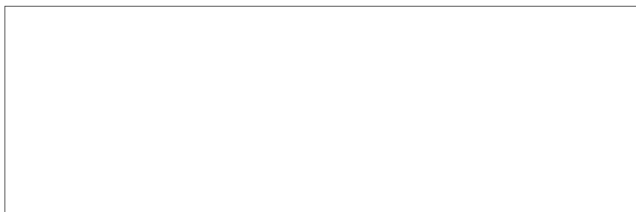
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Total Cost

\$22,689

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*Note: No provision for flight tests has been made in this cost.*



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